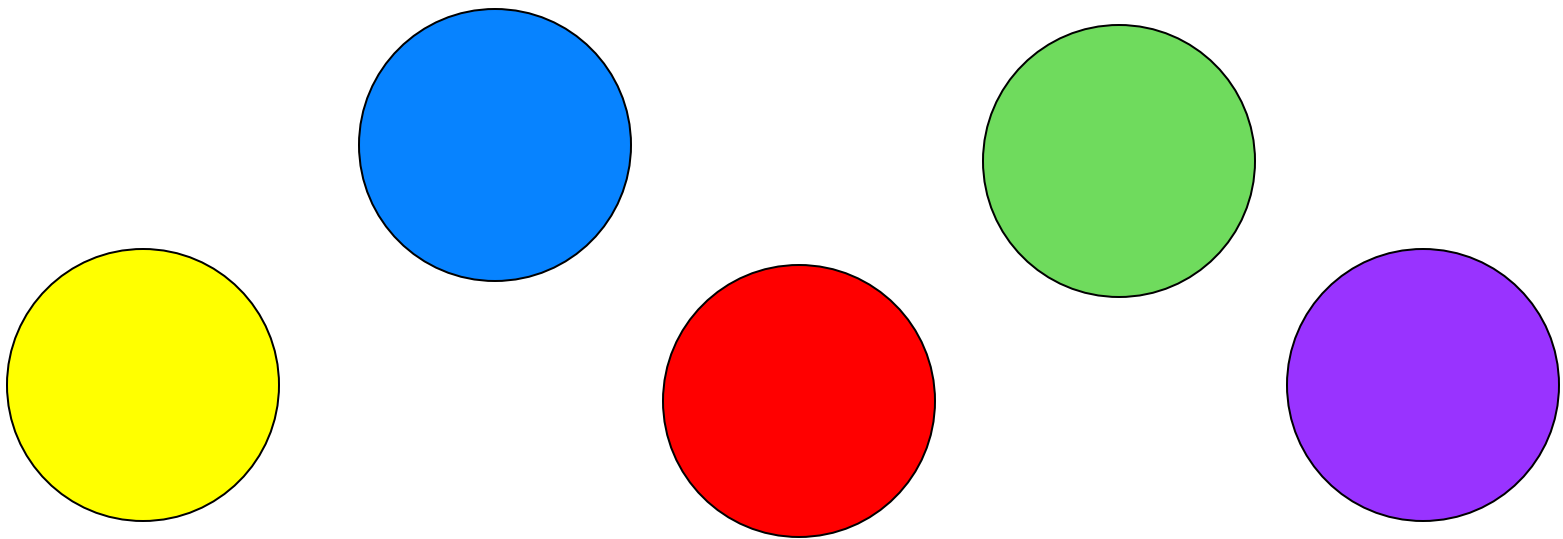


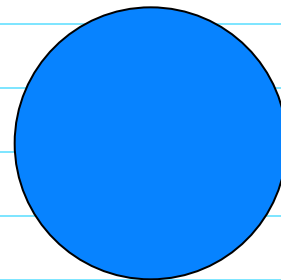
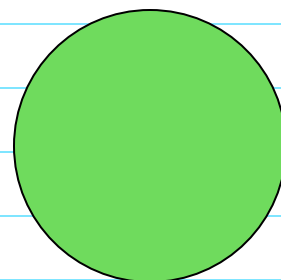
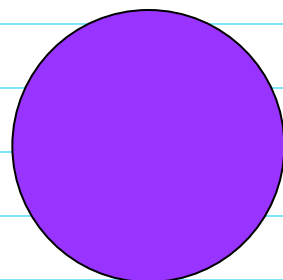
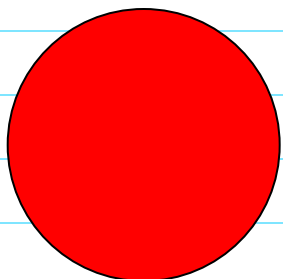
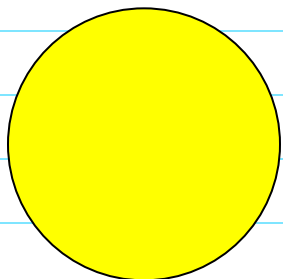
# GEOMETRY

## *Circles & Arcs*



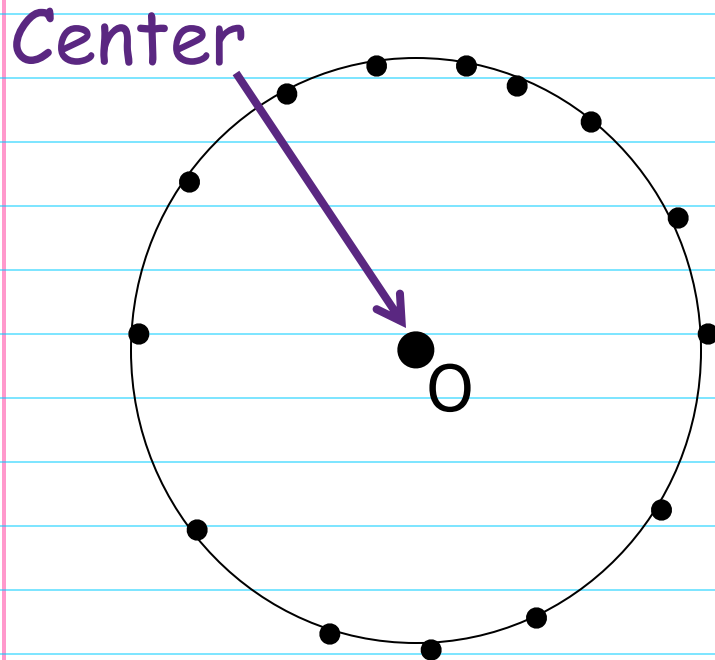
# GEOMETRY

- **Learning objectives:** to discover the properties of circles and how they relate to each other. To understand the definitions of terms related to circles.
- Note that many of these terms or concepts relate to things we have learned previously. How do they differ for circles (if at all)? What things are unique to circles?



# Circle

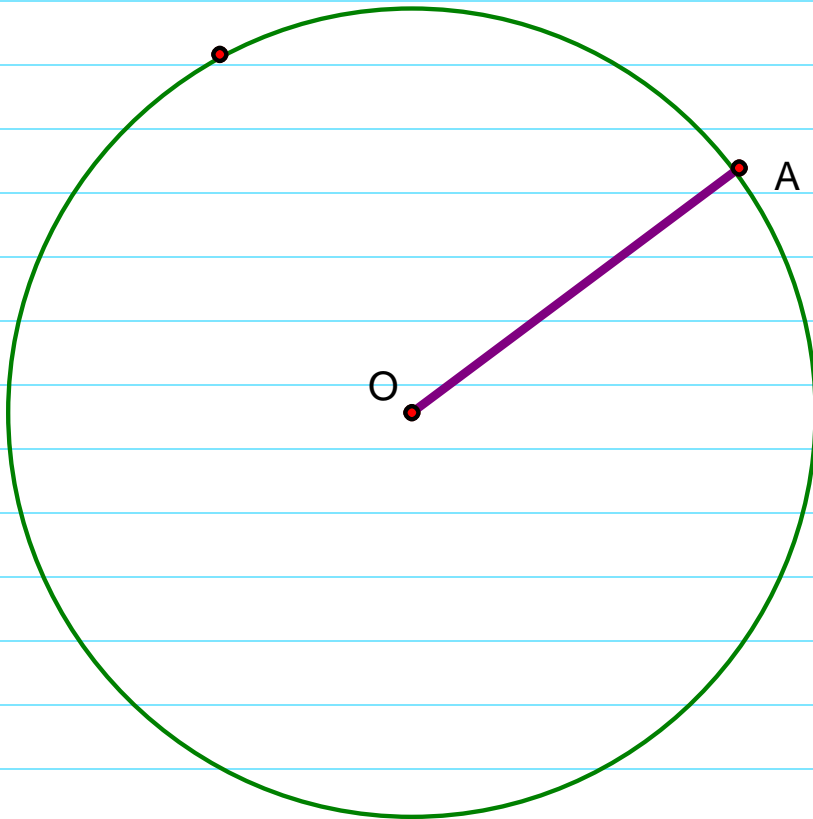
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- The set of all points a fixed distance away from a center.
- Example: **Circle O**

The point from which all points on the circle are the same distance.

# Radius (Radii for plural)



- The segment joining the center of a circle to a point on the circle.
- All radii are congruent.
- Example:  $\overline{OA}$

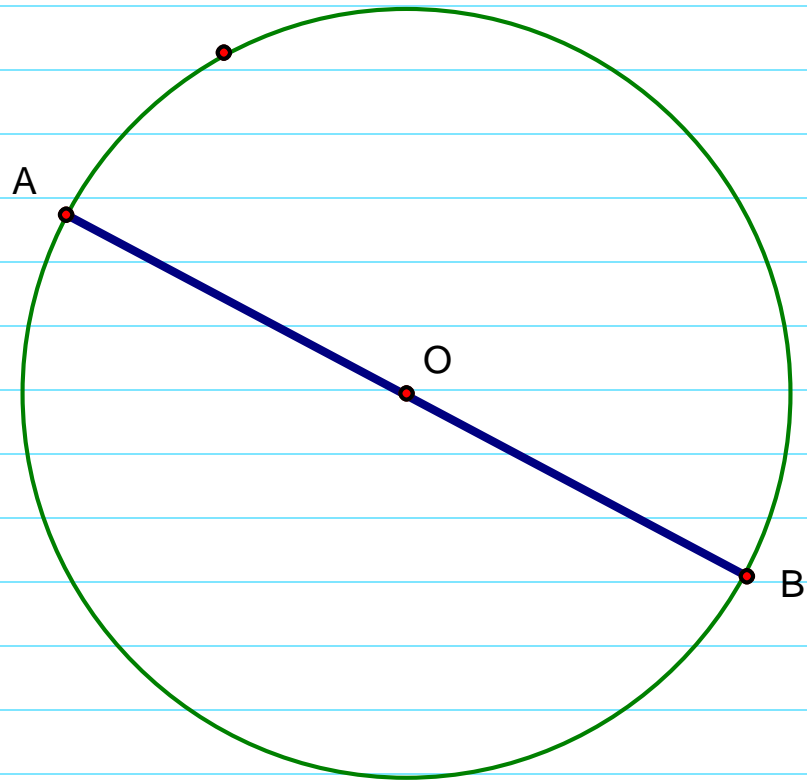
# Diameter

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- A *segment* that passes through the center of a circle.

- All diameters are congruent.

- Example:  $\overline{AB}$



# Congruent Circles



- Circles that have the same radius.



# Concentric Circles



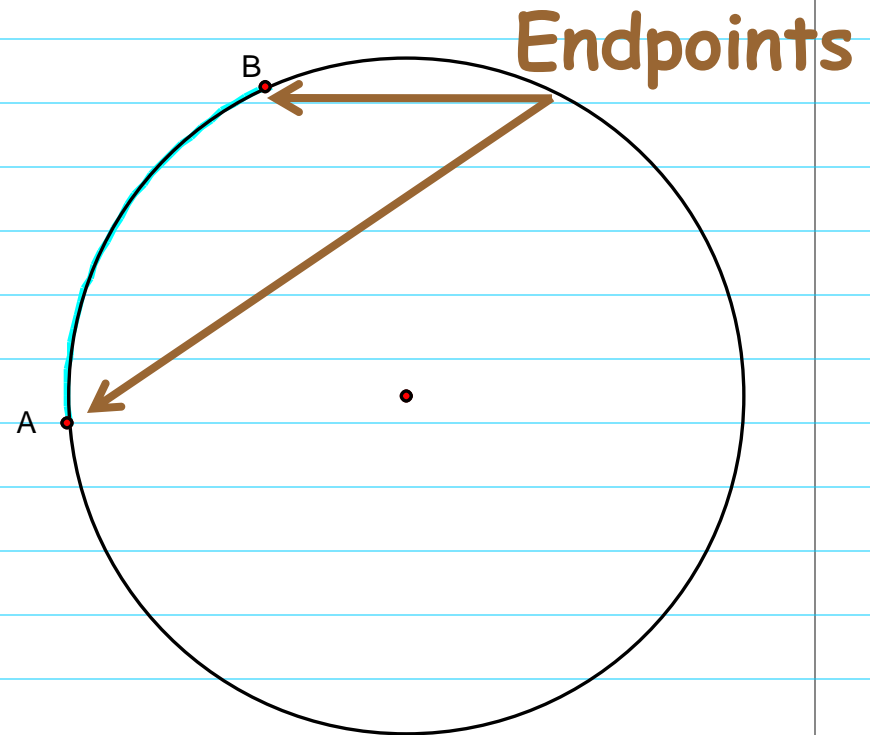
- Circles that share the same center.

*What do you call concentric circles that are also congruent?*

*Congruent concentric circles.*

# Arc

- Two points on the circle and the part of the circle between them.
- The points are *endpoints* for the arc.
- Example:  $\widehat{AB}$

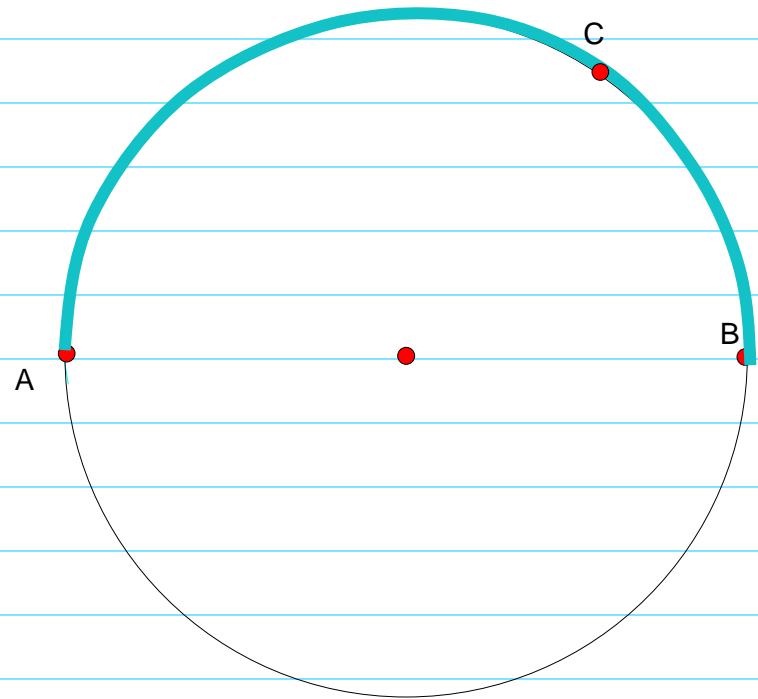




# Semicircle

- An arc whose endpoints are on a diameter.

- Example:  $\overset{\frown}{ACB}$



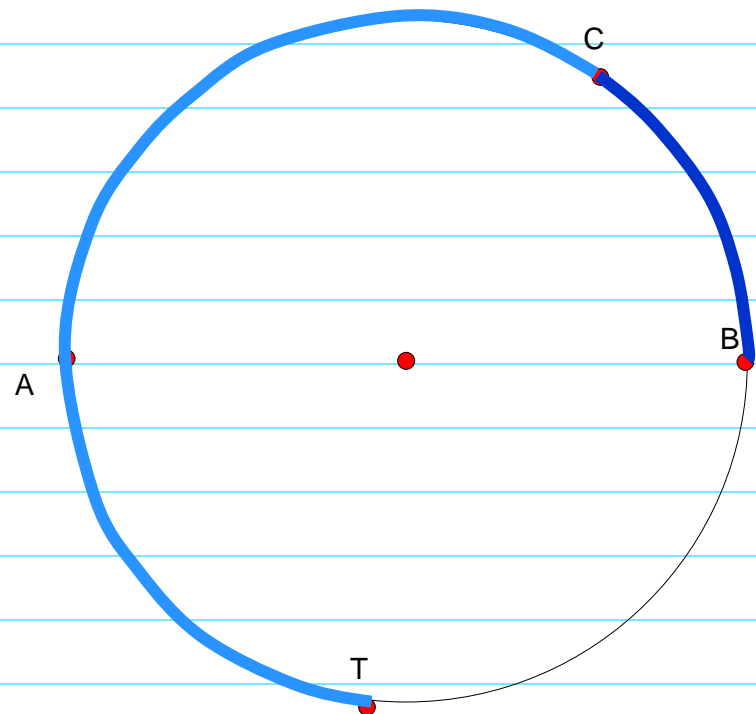
# Major & Minor Arcs

- Minor – An arc that is smaller than a semicircle.

- Example:  $\widehat{BC}$

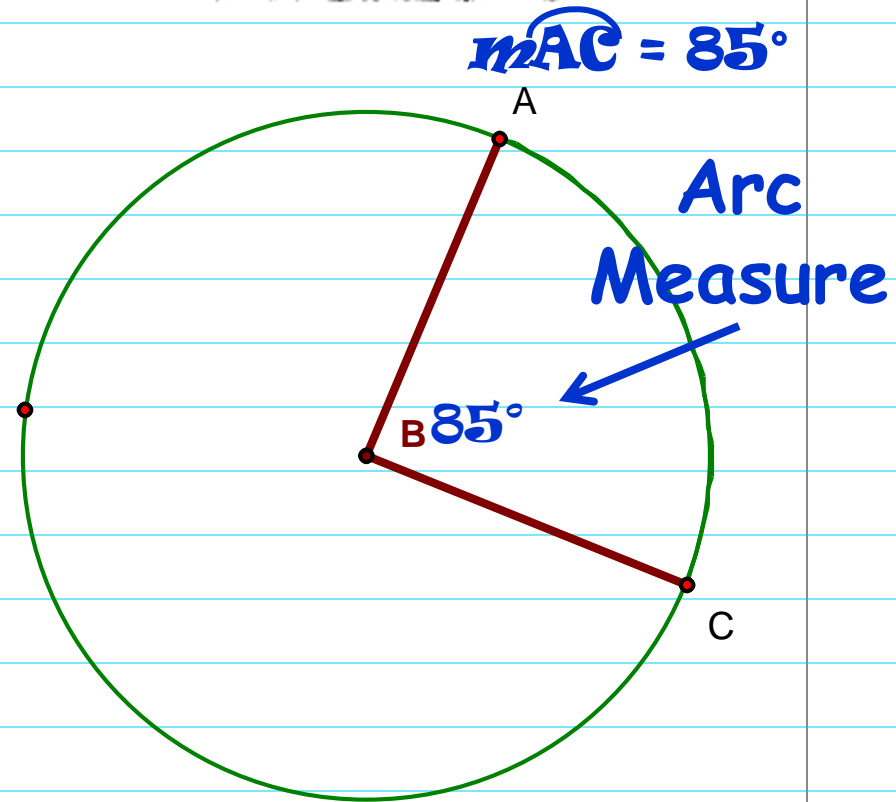
- Major – An arc that is larger than a semicircle.

- Example:  $\widehat{CAT}$



# Central Angle & Arc Measure

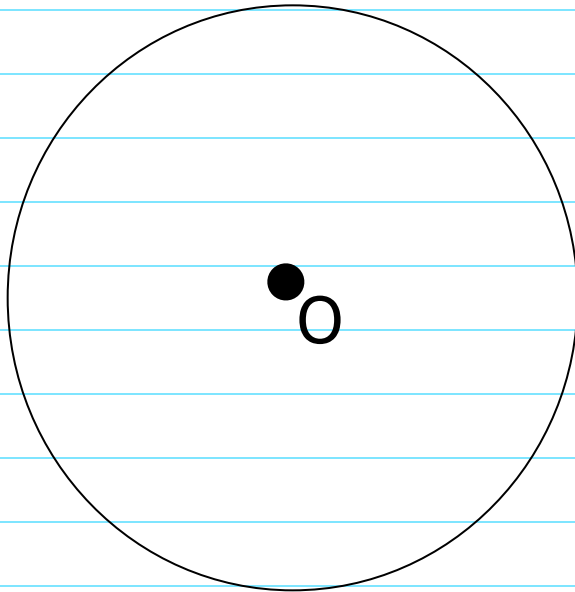
- An angle whose vertex is at the center of a circle.
- Example:  $\angle ABC$



The measure of the central angle that intercepts the arc.

# Circumference

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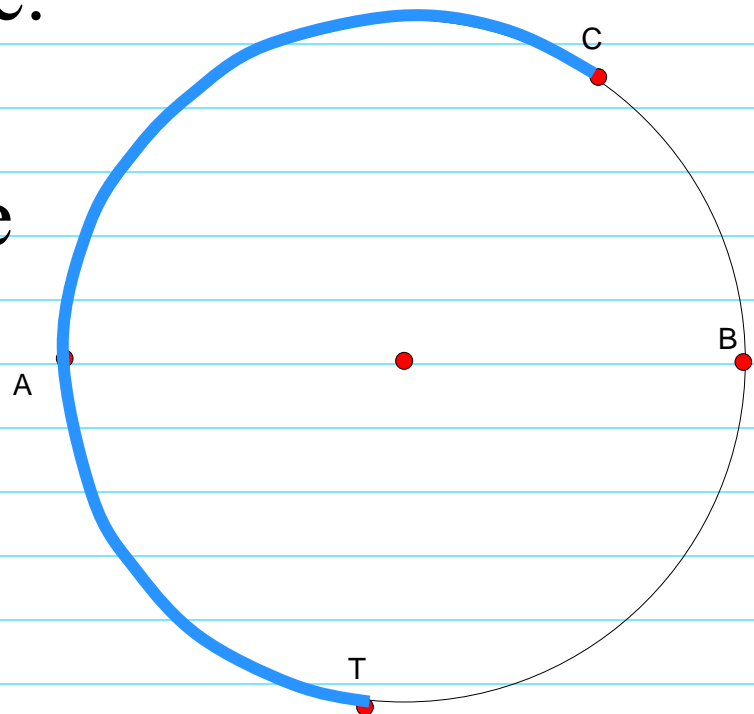


- Distance around the circle.
- Example:  **$C = 20\text{ft}$**
- It is a *linear* measure

What is circumference similar to in polygon measure?

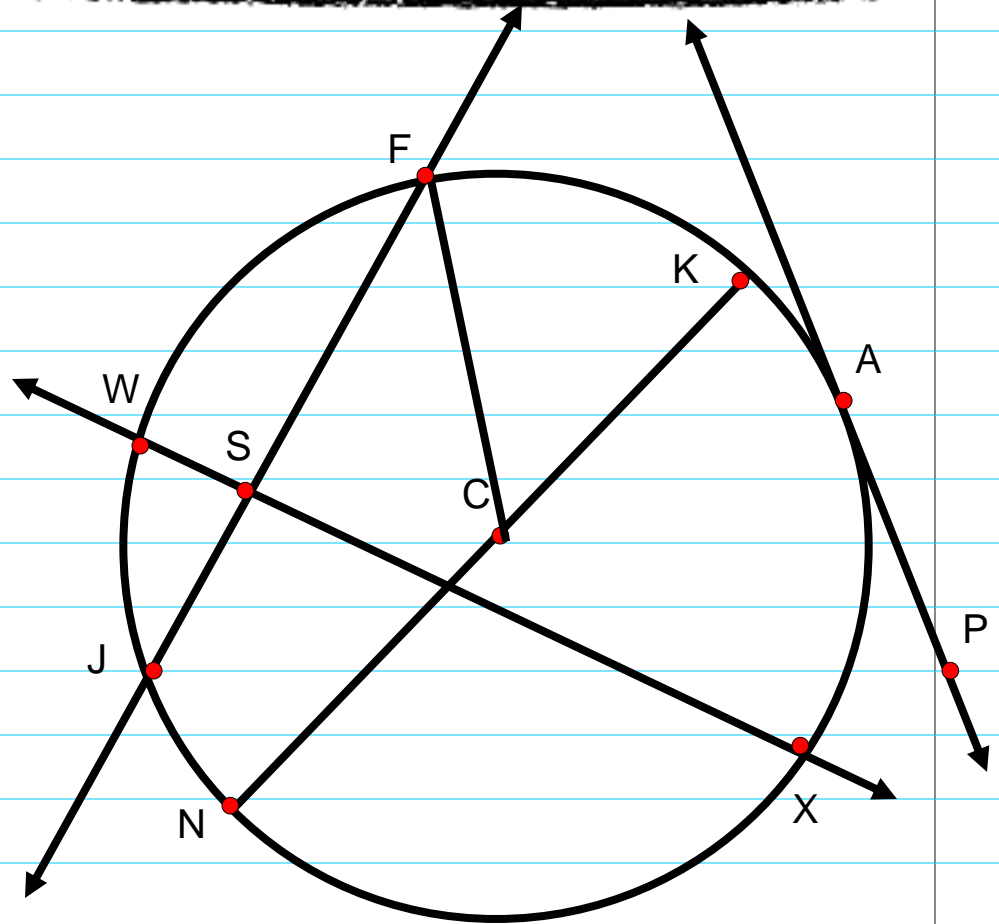
# Arc Length

- A fraction of the circle.
- The distance from one endpoint to the other
- Example:  
length of  $\widehat{TAC} = 12\text{ft}$



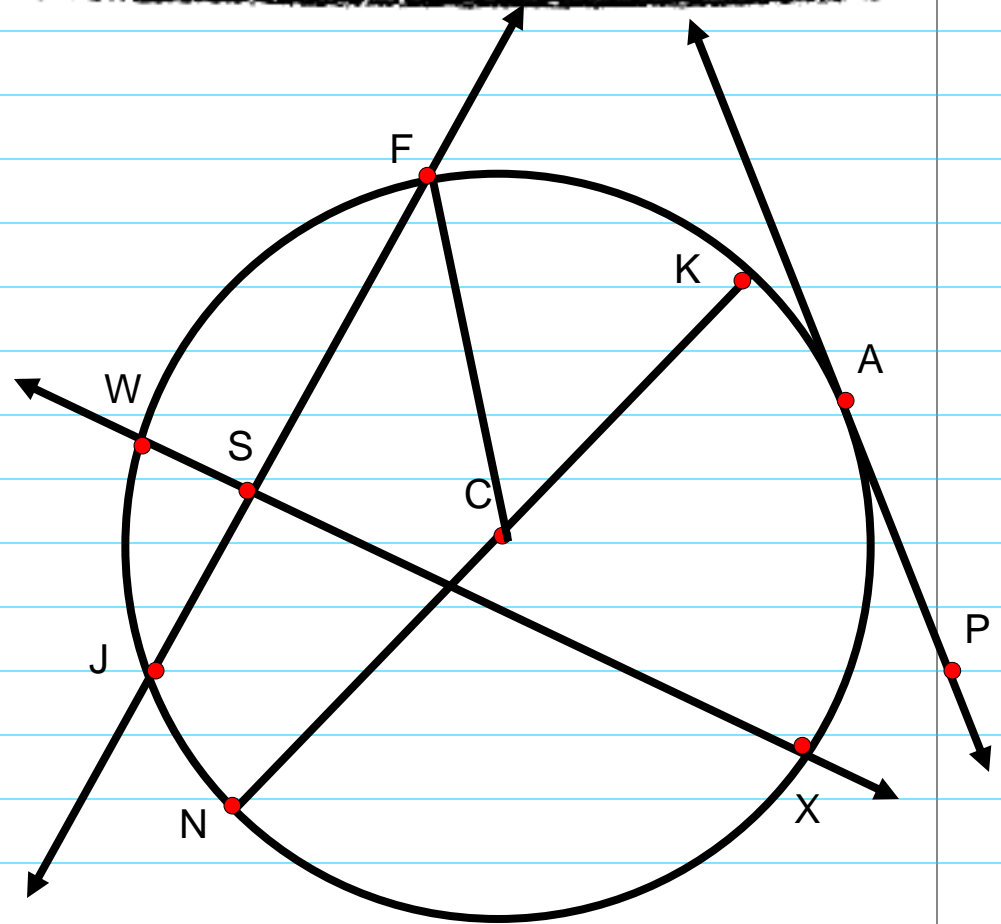
# Practice

- Diameter
- Radius



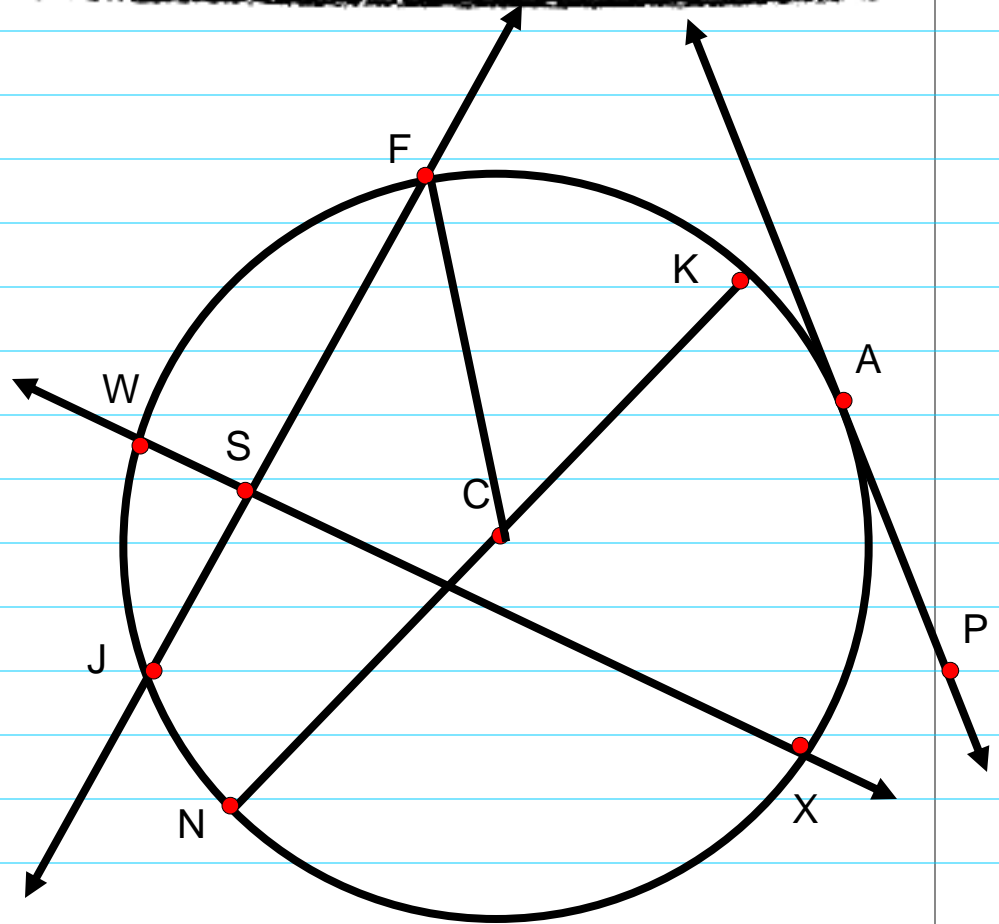
# Practice

- Minor Arc
- Major Arc



# Practice

- Semicircle



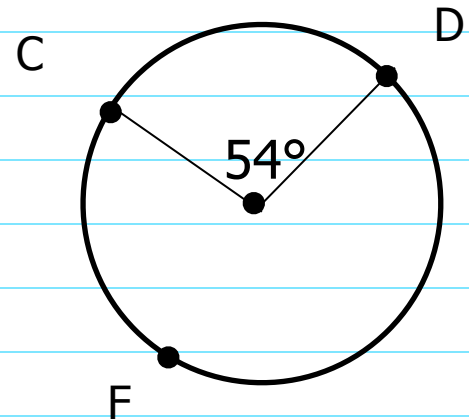


# Example

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Given  $m\widehat{CD} = 54^\circ$ , what is  $m\widehat{CFD}$ ?

$$360^\circ - 54^\circ = 306^\circ$$



# Questions

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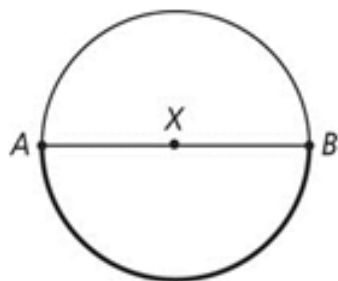
In what ways are circles like polygons?

In what ways are they unlike polygons?

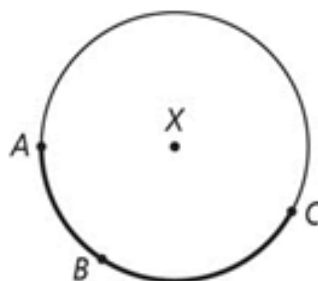
# Exit Slip

adjacent arcs  
central angle  
circumference  
concentric circles  
diameter  
major arc  
minor arc  
radius  
semicircle

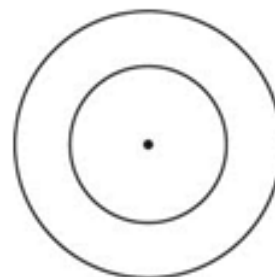
1.  $\widehat{AB}$



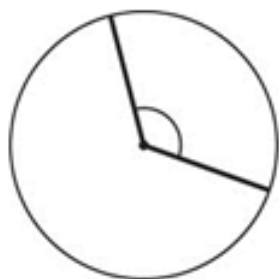
2.  $\widehat{AB}$  and  $\widehat{BC}$



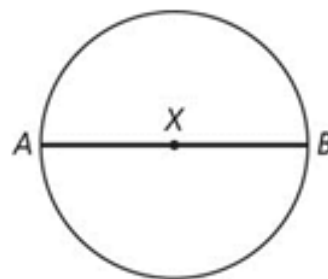
3.



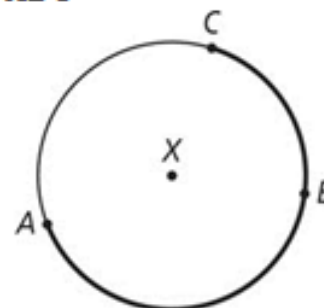
4.



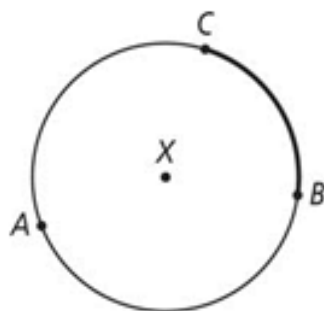
5.



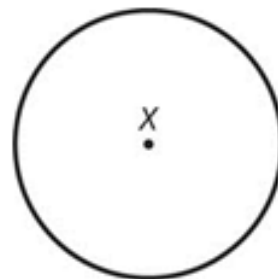
6.  $\widehat{ABC}$



7.  $\widehat{CB}$



8.



9.

